

INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS FOR PHYSICAL SCIENCES AND ENGINEERING (MATH_045_020, EE_020A_020) - CL

MATH045/EE020A: Introduction to Ordinary Differential Equations for Physical Sciences and Engineering UC Riverside, Spring 2022

Lectures: WF 9:30am-10:50am in online/zoom

Meeting ID: 916 5811 4588

Passcode: 636442

link: <https://ucr.zoom.us/j/91658114588?pwd=OHd5RU41ZXhJeFBKNFJpNUxhSzlxUT09>
(<https://ucr.zoom.us/j/91658114588?pwd=OHd5RU41ZXhJeFBKNFJpNUxhSzlxUT09>)

Instructor: Heyrim Cho, Email: heyrimc@ucr.edu

Office hours: Th 9:00-10:00am or by appointment. (same zoom link as class)

TAs: Ryan Ta Email: rta002@ucr.edu

Michael Gulas Email: mgula002@ucr.edu

Office hours: Contact your TA

Course description: Introduction to ordinary differential equations; complex numbers; trigonometric, compact and exponential Fourier Series; frequency spectrum; Laplace transform, Fourier transform, and their application to the solution of integro-differential equations as they appear in the physical sciences and engineering.

Textbook Elementary Differential Equations with Boundary Value Problems by William F. Trench, a free text which can be found at <https://digitalcommons.trinity.edu/mono/9/>
(<https://digitalcommons.trinity.edu/mono/9/>).

Additional References:

- (1) Mary L. Boas, *Mathematical Methods in the Physical Sciences*, Third Edition, 2006 John Wiley & Sons
- (2) K. F. Riley, M. O. Hobson, and S. J. Bence, *Mathematical Methods for Physics and Engineering*, Third Edition, 2006 Cambridge University Press.
- (3) Merle C. Potter, Jack L. Lessing, and Edward F. Aboufadel, *Advanced Engineering Mathematics*, Fourth Edition, 2019 Springer Nature Switzerland.

Online and Written Homework: Homework will be assigned each Friday and will be due on the following Friday, 11:59pm. Homework will be assigned either in 1) WeBWork or 2) as written problems.

1) WeBWork homework can be solved and submitted here:

(https://webwork.ucr.edu/webwork2/MATH_045_020_22S/
(https://webwork.ucr.edu/webwork2/MATH_045_020_22S/.)

See the student's guide for WeBWork:

<https://mathdept.ucr.edu/sites/g/files/rcwecm1516/files/2020-02/WeBWork%20Student%27s%20Guide%20Mar2012.pdf>
(<https://mathdept.ucr.edu/sites/g/files/rcwecm1516/files/2020-02/WeBWork%20Student%27s%20Guide%20Mar2012.pdf>.)

2) Written homework should be submitted through Gradescope (www.gradescope.com) (<http://www.gradescope.com>).

Gradescope Course Entry Code: 5VYK3E

In fairness to all students, homework submitted after the deadline will not be graded. You must show all appropriate work in order to receive full credit for an answer. Show your work that is clear enough to be understood by the grader.

Exams: There will be one midterm during the regular lecture hour, and one final exam.

Midterm : May. 04, Wednesday, in class, 9:30-10:50am

Final Exam: June. 08, Wednesday, 8:00am-11:00am

Grading policy: Homework (online 15%, written 15%), Midterm (30%), Final Exam (40%)



Course webpage: eLearn. (Course announcement will be on eLearn/canvas.)



Policies on late homework and missed exams: Late homework will NOT be accepted. Homework must be stapled, otherwise not accepted. Also, the makeup exam will be given in accordance with UCR policies. NO makeup will be given unless a student can present substantial evidence that an absence was caused by extreme personal or medical emergencies or compelling circumstances beyond the student's control. If the absence is foreseeable, such as religious observation, notice must be given within the first two weeks of the quarter. Written verification (from physician, lawyer, judge, parole officer, etc.) or documentation must be presented as soon as possible or latest at the time of the makeup. Students who do not provide adequate documentation for their absence will not receive a score.

Academic Integrity: You are welcomed to discuss the material with each other in a general way, however you may not consult anyone else's written work, drafts, etc. All work that you submit must be your own. Marked similarity in form or notation between submissions with different authors can be regarded as evidence of academic dishonesty. You must cite any reference you use and clearly mark any quotation or close paraphrase that you include. Such citation will not lower your grade, although extensive quotation might.

Accessibility and Disability Service: Students who require special examination conditions must register with the office of the Student Disability Resource Center (SDRC). Documentation must be provided and discussed with me in person within the first week of classes.

Course Summary:

Date	Details	Due
	 Final exam (https://elearn.ucr.edu/courses/48967/assignments/345283)	
	 Midterm (https://elearn.ucr.edu/courses/48967/assignments/345279)	

Date	Details	Due
	 WeBWork (https://elearn.ucr.edu/courses/48967/assignments/345277)	
	 Written (https://elearn.ucr.edu/courses/48967/assignments/345278)	